



1050 EXPO BOULEVARD

1050 EXPO BOULEVARD,
VANCOUVER, BC

DEVELOPMENT PERMIT DESIGN RATIONALE
OCTOBER 30, 2023

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public

Groundswell
LANDSCAPE ARCHITECTURE

CITY OF
VANCOUVER

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INTRODUCTION

Project team

City of Vancouver

The city has a long history of climate action creating innovative solutions for below-market housing in Vancouver. Since the 1990s, Vancouver has been working with the community to address the environmental challenges facing our city. The City is committed to demonstrating global leadership in addressing the challenges of climate change while creating economic opportunities and maintaining world leading standards of living for local residents.

BC Housing

BC Housing develops, manages and administers a wide range of subsidized housing options across the province. BCH works with the ministry responsible for housing to address critical gaps across the housing continuum, which range from emergency shelter and rent assistance in the private market to affordable home ownership. They work with about 800 housing providers and help more than 110,000 households in communities across British Columbia.

Non-Market Housing Development & Operations

NMHDO’s vision is for all Vancouver residents to have access to affordable, safe, and quality homes. Building on City-owned land, NMHDO liaises with investment, development, and community partners to create below-market housing options. They are a project manager.

Public Architecture

PUBLIC builds culture and shapes identity. Our work creates spatial experiences—beyond buildings — to the city at large, capable of spurring transformation, engagement and renewal. PUBLIC is the architect and prime consultant for the 1050 Expo project.

Wicke Herfst Maver

WHM is a structural engineering firm with a wealth of experience in the design of wood frame and mass timber residential, commercial, institutional and educational facilities located in Canada and the United States.

AME Group

AME Group is the mechanical and fire safety consultant for this project.

AES Engineering

AES Engineering is the electrical consultant on this project.

R.F. Binnie & Associates

Binnie is the civil consultant bringing expertise in innovative stormwater management strategies.

GHL Consultants

GHL’s diversified background and experience, enables them to provide a wide range of services, building code compliance review, performance based design and alternative solutions. GHL is the code consultant and certified professional.

RDH Building Science Inc.

RDH Building Science is the envelope consultant and Passive House lead.

Gunn Consultants

Gunn is providing elevator consulting services.

Groundswell Landscape Architecture

Groundswell is the landscape architect on this project.

Bunt & Associates Engineering

Bunt & Associates Engineering Ltd. is providing transportation consulting services.

Peel Passive Housing Consulting Ltd.

Peel is the Passive House consultants for this project.

RWDI

RWDI is the acoustic consultant for this project.

Kane Consulting Partnership

Kane Consulting is the sustainability lead.

INTRODUCTION / CONT'D

Site

The 1050 Expo Boulevard site is one of the last sites to be developed in the Quayside, Cambie-Beatty and Coopers Park Neighbourhoods.

The development site is a semi-triangular 3,870 m² lot bordering Expo Blvd to the north, Pacific Blvd to the south and Nelson Street to the east, consisting of one CD-1 (324) zoned lot. The site is currently operating as a surface parking lot.

Rezoning intent

The intent of rezoning the existing CD-1 (324) (Comprehensive Development) is to increase the number of non-market housing units on the site to achieve a target of 294 affordable rental units in a high-rise tower form of development with three levels of below grade vehicle and bicycle parking accessed from Expo Blvd.

FUNCTIONAL PROGRAM	Units
Residential units	Studios
	One bedroom
	Two bedroom
	Three bedroom
Amenity	Multipurpose lounge
	Family amenity room
	Resource / meeting room
	Kitchenettes
	Washrooms
	Entry lounge
Support	Lobby
	Office
	Mail room
	Laundry / janitor / storage

Housing program

As per *Family Room: Housing Mix Policy for Rezoning*s, a minimum 35% mix of two and three-bedroom family units is required. The housing program includes Studio, 1, 2, and 3 bedroom units, with a family unit target of 40%, as described in the table below.

Common areas including a entry lobby, mail room and an office are located at the ground level. Shared laundry rooms are distributed through the tower for convenience.

Vehicle stalls, bicycle storage, recycling and waste storage room, accessed by elevators, are located at levels P1 - P3.

Accessibility - All units will be adaptable and minimum 5% of units will be accessible as per the City’s and BC Housing guidelines.

Amenity space - As per *High-Density Housing for Families with Children Guidelines*, meeting spaces, a common lounge and a family amenity room with kitchenette and washroom are provided at the ground floor adjacent to the outdoor amenity and children’s play areas.

Outdoor amenity space - Shared balconies located on each residential floor are proposed for the studio and one-bedroom residents with access to outdoor amenity space. Private balconies meeting City Guidelines for private outdoor amenity space are provided for all family units. A common roof deck is provided at level 28

Affordable housing - The anticipated affordability level is 20% shelter, 50% Housing Income Limits and 30% Low End of Market with the different afford-ability levels spread throughout all unit types. Please note that this is subject to BC Housing funding program requirements.

All units will be secured as social housing for a term of 60 years, or the life of the building, whichever is greater, via a Housing Agreement.

BC Housing (BCH) is expected to be the primary funder, towards the development of these affordable units, with a grant modelling the Community Housing Fund, Canadian Mortgage and Housing Corporation (CMHC) is also anticipated to be a contributing partner.

Form of development - In accordance with *Zero Emissions Building Catalyst Policy and Guidelines*, building articulation, such as setbacks or bays, can create a challenge in designing a thermally efficient envelope by increasing the ratio of envelope to enclosed space. Instead, simple massing articulations, thermally efficient balconies, material variations, texture, colour, and landscape elements contribute to building form and character.

Applicable policies

Several relevant planning policies inform the 1050 Expo design including:

- False Creek North Official Development Plan (1990)
- Northeast False Creek Plan (2018)
- CD-1 (324), current zoning
- Quayside Neighbourhood CD-1 Guidelines (1993, last amended 2001)
- View Protection Guidelines (1989, last amended 2011)
- Affordable Housing Policies (1989, updated 1991)
- Housing Vancouver Strategy (2017)
- Housing Vancouver 3-Year Action Plan 2018-2020
- City of Vancouver Housing Design and Technical Guidelines (updated September 2021)
- Family Room: Housing Mix Policy for Rezoning Projects (2016)
- High-Density Housing for Families with Children Guidelines (1992)
- Green Building Policy for Rezoning
s (2010, last amended May 17, 2022)- BC Housing Design Guidelines and Construction

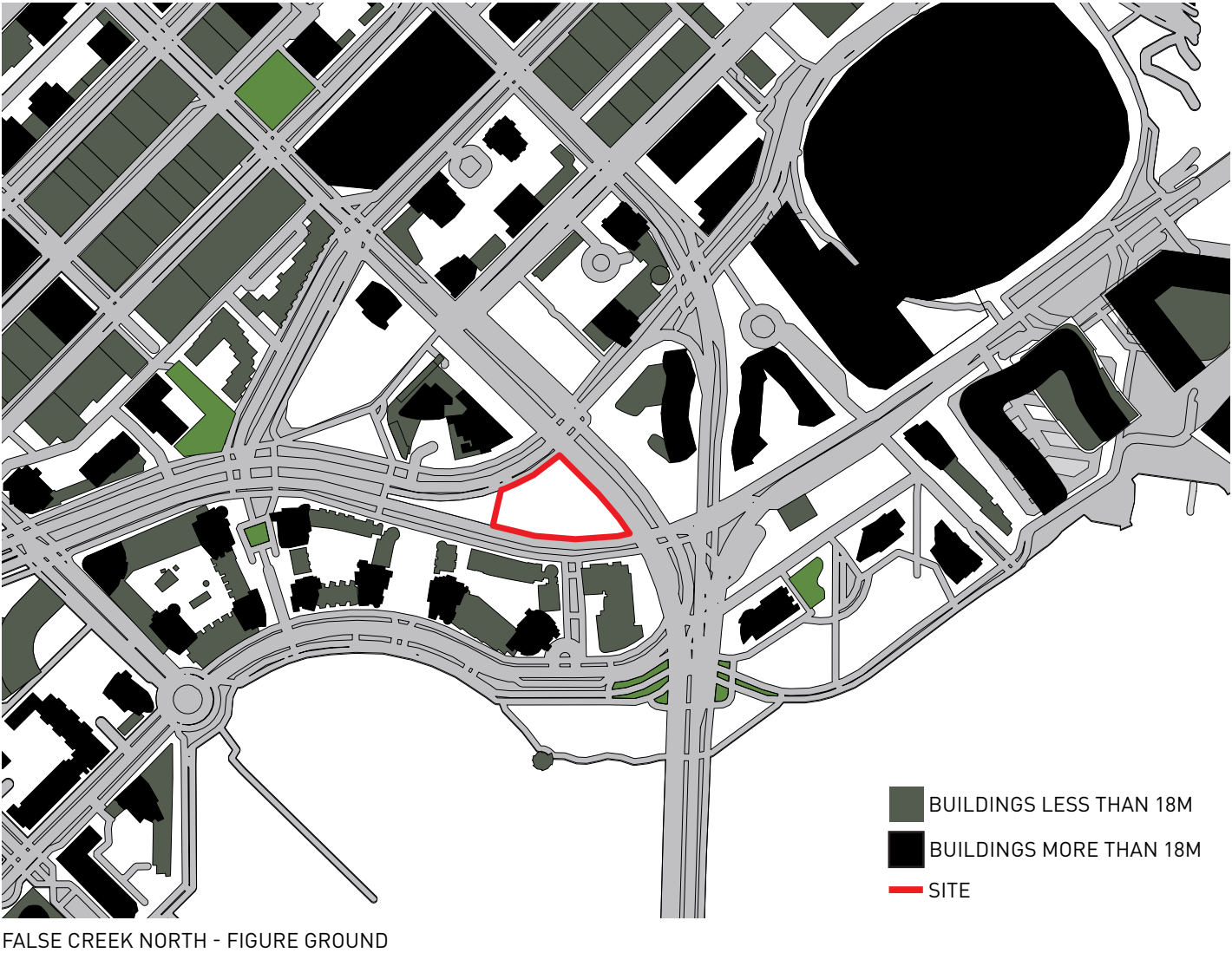
INTRODUCTION / CONT'D

- Standards (2019)
- CMHC National Co-Investment Fund Minimum Environmental & Accessibility Requirements (New Construction)
 - Mitigation of Event-Related Noise For Residential Buildings Policy – Northeast False Creek and Adjacent Impact Areas (2010)
 - Greenest City: 2020 Action Plan
 - Passive House Relaxations - Guidelines for Larger Projects (2019)
 - Green Building Rezoning Policy (2010, last amended 2022)
 - Zero Emissions Building Catalyst Policy (2018)
 - Guidelines for the Administration of Variance in Larger Zero Emission Buildings

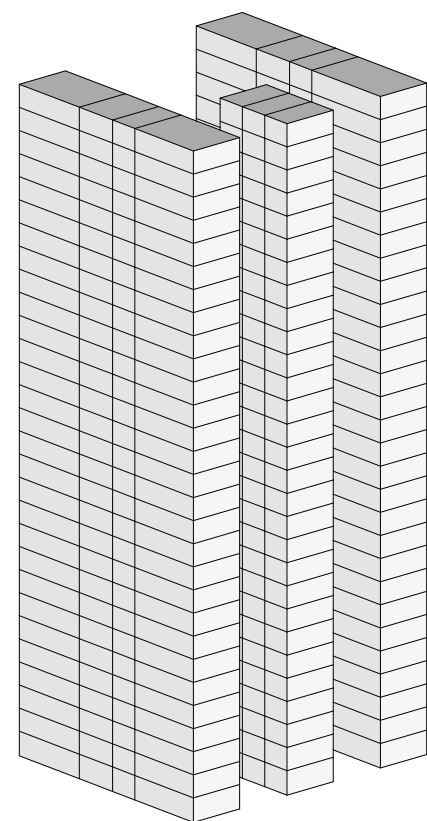
Statutory Right of Ways - A Statutory Right of Way for the Nelson Street Pumping Station and Twin Force Main agreement (SRW) extends approximately 10.4m over the east portion of the site from Expo Blvd to Pacific Blvd, parallel to east property line. The agreement

limits development of the SRW area to “light landscaping under 1.5m in height, paving and grass,...” and “never to suffer or permit structures or improvements to exist on the hatched area...”. This limitation is to allow for planned improvements to the pump station. Accordingly, all architectural development is outside the SRW.

A SWR for the Cambie Bridge extends over the est portion of the site, for the purposes of future bridge widening, access, maintenance, repair, rehabilitation, and retrofit of the bridge. The SRW shall be a minimum of 6m wide and shall be taken from the drip line of the bridge.

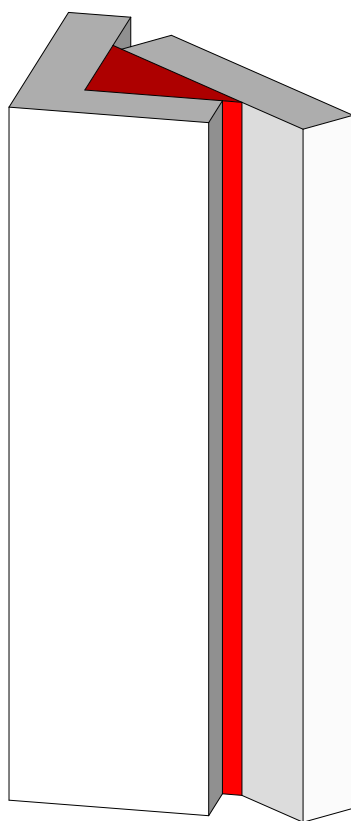


DESIGN RATIONALE

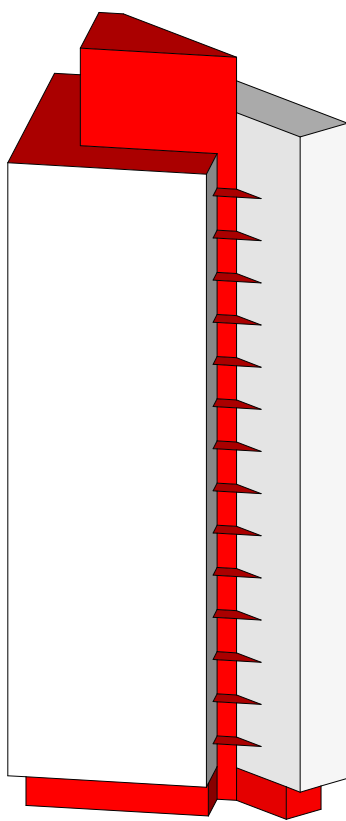


Design response

The design begins by stacking orthogonal, livable, adaptable and efficient housing units with equitable access to natural light and views. The standard depth orthogonal units anticipate efficient and affordable prefabricated construction.

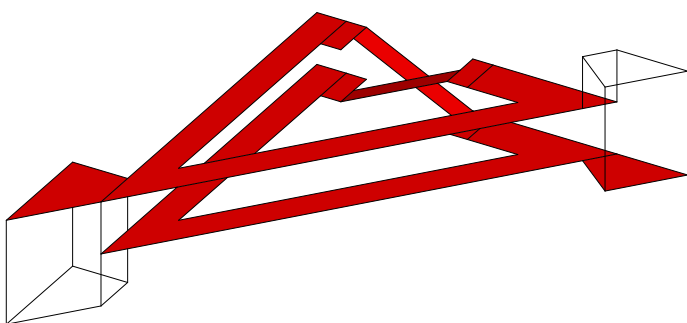


In response to the triangular site, shaped by the confluence of Expo and Pacific Boulevards, three bars of housing pinwheel around a triangular core. Where the bars meet at acute corners the internal corridors meet the exterior allowing daylight and possibly natural ventilation into the common areas.



The tower meets the ground with covered outdoor space that provide rain and solar protection to amenity spaces that address each public face of the building. From Pacific Boulevard and Cambie Bridge vantage points, the tower presents a narrow width of a single housing unit.

In the same way that Vancouver’s 1500 West Georgia building breaks its massing at the top, this proposal meets the sky with three levels of massing, with the lower mass creating a landscaped roof terrace.



Communal balconies at alternating floors of the acute corners provide a double height shared exterior space for neighbours to meet. All floors have direct access to a shared, south or west facing balcony, as well as overlook to an adjacent floor balcony allowing residents to choose between warmth or shade. Each pair of floors, with shared laundry and storage, contains 22 homes - perfect for a block party.

DESIGN RATIONALE / CONT'D

Policy Response

Quayside Neighbourhood CD-1 Guidelines - In accordance with the CD-1 No. 324 guidelines urban design responses are proposed:

All street edges are provided with active indoor and outdoor amenity uses that provide visual interest, security while enhancing the pedestrian experience along Pacific and Expo Boulevards. Accessibility to the site is enhanced by providing minimal sloped passageways at main and secondary entrances. Drop-off and visitor parking is integrated within the building and is located at the P2 level.

The Pacific and Expo streetscapes are designed to create safe urban spaces that provide pedestrian interest, with residential entries and active amenities located at grade. Secure underground parking is provided for residential uses with access to building entrances.

Contextual vertical expression - Analysis of the neighbouring residential buildings in the Quayside neighbourhood reveals a predominate vertical expression with distinct massing elements to emphasize slender vertical tower forms. Horizontal datums are secondary and only expressed strongly at the base and top of the tower. Mid-level cornice lines are avoided in this neighbourhood to emphasize the slender tower form. In keeping with this pattern, the 1050 Expo Boulevard the tower emphasizes a crisp vertical expression with the south mass facing Pacific rising above the northeast Expo mass, in order to thin the tower at the upper levels and to reduce the visual impact on the skyline. The elevator penthouse is integrated into the central core massing, rising above the residential unit masses, with a unified expression similar to 1500 West Georgia's tower. The following view and shadow analysis demonstrate minimal impacts on adjacent public spaces.

The building tapers to a flat iron expression to the west while south and north facades orient to Pacific and Expo Boulevards. Outdoor open space is located on the south side of the site



ANALYSIS OF NEIGHBOURING ARCHITECTURAL EXPRESSION

to maximize sunlight exposure. Traffic noise impacts are mitigated with perimeter planting and a modest landscape berm matching the required interior flood construction level of 4.8m.

Flood Construction Level - In accordance with NEFC Plan, policy 11.2.1, the proposed ground level will be at the required flood construction level of 4.8m geodetic datum. As per recent

changes to the Canadian Electrical code, the electrical entry room, vista switch (if required) and the emergency generator room will be located at the ground level, 4.8m geodetic datum. A minimum 14.0m setback is proposed from the existing Cambie bridge drip-line, and the SRW area will be planted with a low meadow garden in keeping with the SRW agreement that covers the east side of the site.

DESIGN RATIONALE / CONT'D

Active streets - As an alternate to commercial retail space at grade, the proposed design includes enhanced open and inviting amenity spaces designed to activate the pedestrian realm along Expo and Pacific Boulevards with high-ceiling, light-filled activity rooms, evocative interior design and is a social hub for the residents. This flexible-use design approach can provide an active urban frontage without the previously noted challenges.

The proposed design is inspired by boutique

hotel amenity spaces combining warm materials, artwork, comfortable seating, and food preparation facilities to enable a range of social events. The amenity space is design to provide following characteristics of a welcoming commercial retail space:

1. additional floor to ceiling height;
2. enhanced access to natural light;
3. extended street frontage with multiple indoor-outdoor connections, and
4. designated outdoor seating space.

Increased indoor amenity area - Over 15 sq. ft. per unit of amenity space is provided on the ground floor, level two and level twenty-eight. A mix of spaces is provided for adults, teens and children for socializing in small and large groups. The ground floor amenity spaces has open lounge with a shared kitchen, accessible washrooms, storage, private meeting room and children’s party room. All spaces have direct access to complementary outdoor amenity space.

Informal gathering in the indoor and outdoor amenity areas is encouraged to increase social connections between residents of all ages, and to combat loneliness and social isolation by supporting a range of outdoor activities including urban agriculture, children’s play space, outdoor dining and cooking and family events. Suitable outdoor furniture and equipment will be provided for these activities.



SFU RESIDENCE PHASE 3, BURNABY MOUNTAIN – PUBLIC



INDOOR-OUTDOOR AMENITY SPACE FACING PACIFIC BOULEVARD



INDOOR-OUTDOOR AMENITY SPACE SEEN FROM PACIFIC BOULEVARD

DESIGN RATIONALE / CONT'D

Increased outdoor amenity area - a wide range of outdoor amenity space is proposed for 1050 Expo, including private balconies for family units exceeding minimum dimensions, private balconies for all accessible units, Juliette balconies for studio and one-bedroom units, and large accessible communal balconies on each floor.

Shared communal terraces and gardens are provide adjacent to all indoor amenity spaces at the ground floor, second floor and the twenty-eighth floor. These include places for children, youth and adults in areas suitable for play, dining, socializing and gardening.

Private balconies are designed as an integral part of the tower form, and shared common balconies are expressed as a bridge linking distinct masses. The communal balconies are staggered between east and west sides of the building to provide a double height space and are large enough to accommodate groups of eight to ten people. Larger groups can find more space on the ground, second or twenty-eight levels.

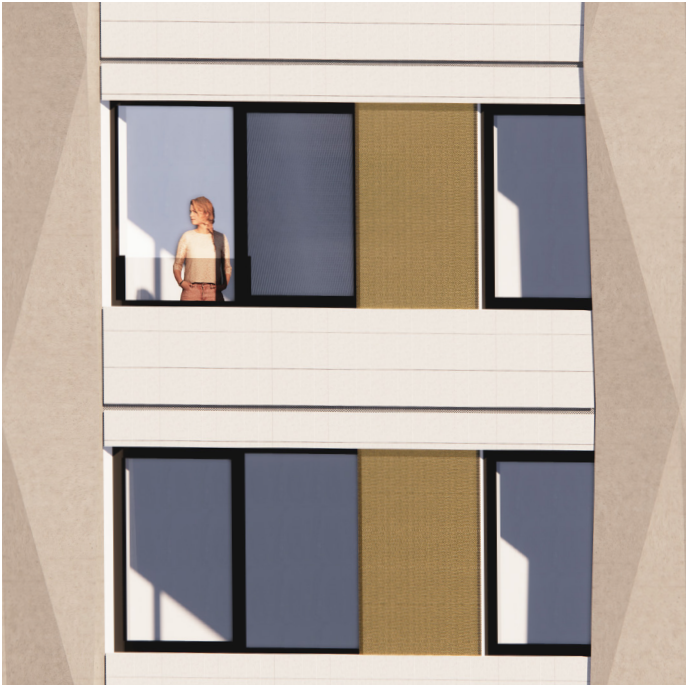
The proposed Juliette balconies for studio and one-bedroom units have a vertical proportion on the North elevation to take advantage of city and mountain views, and units facing South have a wider horizontal proportion to take advantage of panorama views to False Creek. Both Juliette balcony windows have the

OUTDOOR AMENITY	STUDIO / 1-BED	FAMILY UNITS	TOTAL AREA REQUIRED	TOTAL AREA PROPOSED
PRIVATE AREAS				
FAMILY UNIT BALCONY		7.8 sq. m. (84 sq. ft.)*		873.6 sq. m. (9,408 sq. ft.)*
ACCESSIBLE UNIT BALCONY	3.7 sq. m. (40 sq. ft.)*	7.8 sq. m. (84 sq. ft.)*		84.2 sq. m. (906 sq. ft.)*
STUDIO / 1 - BED JULIETTE BALCONY	Large sliding door & guard		665 sq. m. (179 * 40 sq. ft. = 7,160 sq. ft.)	
COMMON AREAS			555 sq. m. (299 * 20 sq. ft. = 5,980 sq. ft.)	
GROUND LEVEL OUTDOOR AREA				426.5 sq. m. (4,591 sq. ft.)
LEVEL-2 OUTDOOR AREA				63 sq. m. (678 sq. ft.)
LEVEL-28 OUTDOOR AREA				361.1 sq. m. (3,887 sq. ft.)
COMMUNAL BALCONY	13 sq. m. (140 sq. ft.) or 18 sq. m. (194 sq. ft.)			403.0 sq. m. (4,338 sq. ft.)
TOTAL			1,220 sq. m. (13,140 sq. ft.)	1,253.6 sq. m. (13,494 sq. ft.)

*AVERAGE AREA - REFER TO THE DRAWINGS FOR MORE INFORMATION.

same glazed area. The horizontal proportion increases solar shading on the south and provides a higher level of comfort for residents who are impacted by vertigo or have a general fear of heights.

This common condition can be characterized by an uneasy feeling people might feel when being close “to an edge” of a tall place. It’s not necessarily fear of heights “acrophobia”, but a general sense of discomfort and unease which is more prevalent in people who have higher levels of anxiety about high-rise living, including lower-middle income people, young mothers and pregnant women.



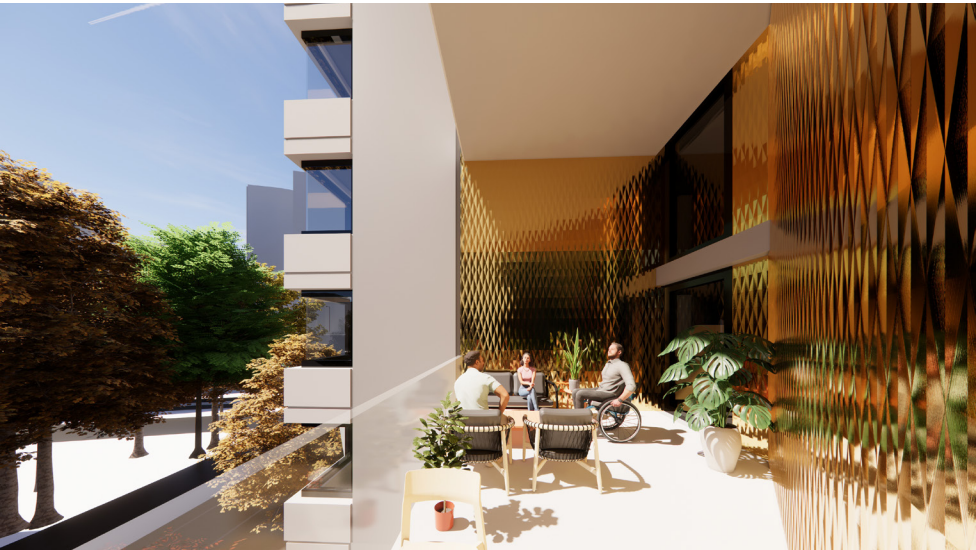
SOUTH FACING JULIETTE BALCONY WINDOW



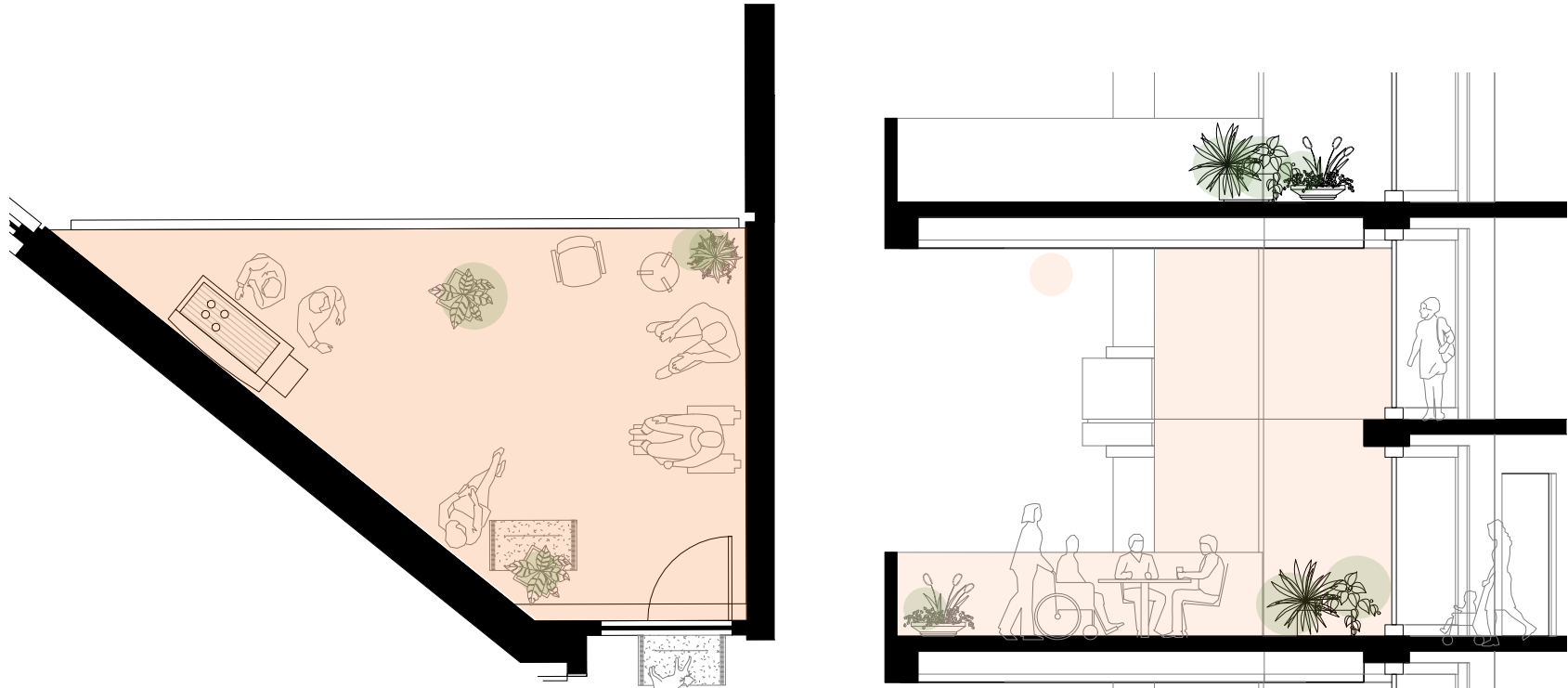
NORTH FACING JULIETTE BALCONY WINDOW

DESIGN RATIONALE / CONT'D

Balconies are designed as an integral part of the architecture of the building with private balconies fully integrated into the tower form, and communal balconies are expressed as a bridge linking north and south building masses.



NORTHWEST FACING COMMUNAL BALCONIES



NORTHWEST FACING COMMUNAL BALCONIES - PLAN AND SECTION



COMMUNAL, ODD FLOORS COMMUNAL, EVEN FLOORS PRIVATE BALCONIES

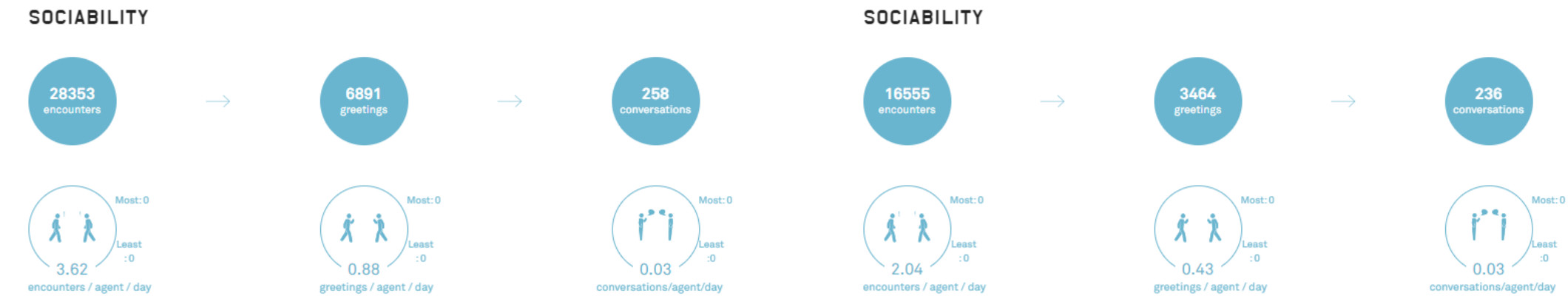
COMMUNAL BALCONIES AND PRIVATE BALCONIES

RELAXATION RATIONALE

Proposed relaxations

Non-dwelling use at grade - Enhanced ground-floor amenity and support spaces are recommended to activate the urban realm rather than commercial uses due to the following reasons:

a) 1050 Expo Boulevard will have an estimate population of 700 singles, seniors, parents, and children. On any given day, there will be multiple birthdays, anniversaries, baby showers, celebrations and more. To provide residents with the best possible experience, we recommend locating the primary indoor and outdoor amenity spaces at grade. Situating event spaces next to the entry lobby and elevators increases chance encounters and the number of social interactions with neighbours as compared to above-grade locations for the amenity areas. Secondary amenity space is also proposed for the second and twenty-eighth floors to accommodate residents’ diverse needs and preferences. Locating the primary amenity space on the ground floor next to outdoor social spaces provides the best chance for residents to meet their neighbours in the building and in the Quayside Neighbourhood. Replacing ground floor amenity space with commercial retail units will reduce opportunities for residents to interact with



COMPUTER SOCIAL INTERACTION SIMULATION – AMENITY AT GROUND FLOOR

COMPUTER SOCIAL INTERACTION SIMULATION – AMENITY AT LEVEL 28

their neighbours because there will be fewer encounters between people using the amenity space and passersby in the lobby and on the Boulevards. Computer social interaction simulations indicated a 71% increase in encounters and 99% increase in greetings if the amenity space is located at the ground floor level instead of level 28.

b) Flood Plain: The 1050 Expo site is in the False Creek flood plain. As result, emergency generator room and BC Hydro service and vista switch rooms are required by CODE to be located above the floor plain at the ground level. This limits the amount of ground floor area available for residential amenity and commercial uses.

c) Residential nature of the neighbourhood: Review of the existing site context demonstrates primary residential character

of this area. This will negatively impact the viability of a successful retail space on this site. The lack of continues commercial promenade as well as the interruptions caused by Cambie bridge, Expo and Pacific streets on this triangular site will result in an obsolete commercial space with limited contribution to the public realm improvement.

d) Provision of commercial retail units (CRUs) creates the following significant design, operations and cost challenges for the applicant and Non-profit Operator:

1. Additional loading: An additional Class B loading space is required by the Parking By-Law, which will increase the size of the service bay on Expo Blvd. Maneuvering of loading vehicles and screening of the service space will be more challenging due to the double bay size. Provision of the additional loading

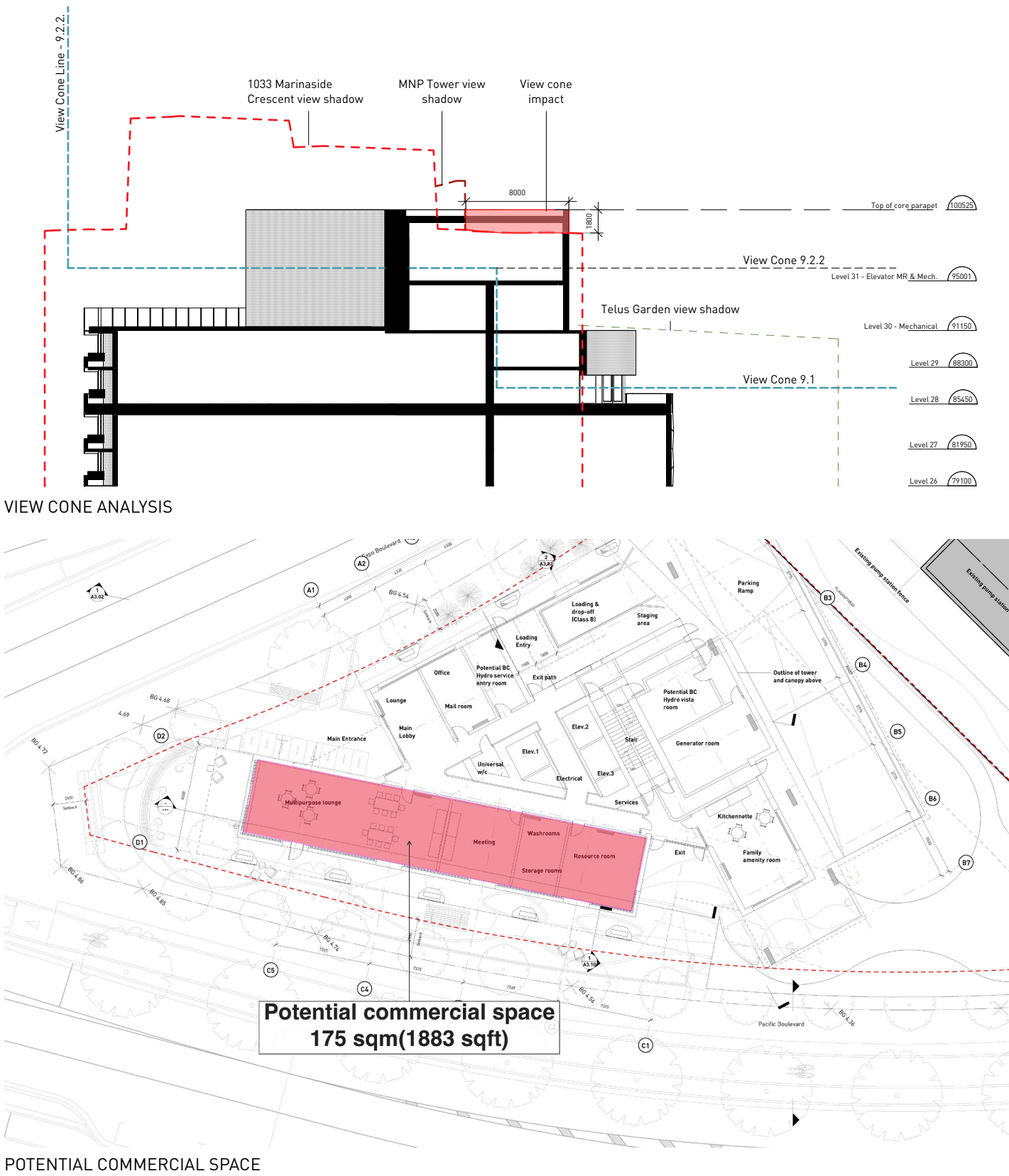
space will further reduce resident amenity space at grade.

2. Additional parking: Two commercial parking spaces are required by the Parking By-Law, which will introduce open public and secure private parking areas, increasing costs and reducing safety and security in the underground parking structure.
3. Additional service space: Bylaws require separate garbage and recycling rooms be provided for commercial retail units. Due to space constraints at the ground-floor level, the retail services spaces would be located on the P1 level, and retail staff would need to gain access to P1, reducing safety and security for residents. Typical mixed-used buildings have separate lobbies and elevators for commercial and residential uses.

RELAXATION RATIONALE / CONT'D

- The 1050 Expo site is too constrained to provide a separate commercial elevator, lobby, and service rooms to maintain security for the residents, without impacting the number of family units.
4. Capital costs: These additional requirements would add more service space to the ground floor, displacing more amenity space to the upper floors, and reducing space for bicycle and car parking. The cost of adding commercial retail units to the project including, parking, loading, service rooms and an elevator could be in the range of \$2,000,000 - \$2,500,000. This project cost will not be funded by BC Housing or CMHC. The cost would need to be funded by a separate funding agency, like the City of Vancouver.
- e) Challenges of an obsolete and small retail space: A large retail space requires significant bylaw relaxations on loading, parking, solid waste, safety and security. A significant reduction in the size of the retail space would be required for the bylaw relaxation which would impact the retail space's viability as an attractive commercial space.
- f) Operational Costs: Adding commercial retail units will incur ongoing operational costs for

- either the City of Vancouver or the Non-profit operator. The Non-profit operator is not intended to operate for-profit retail space, so third-party property manager will need to manage the space, incurring additional costs for the Operator. Additionally, BC Housing will not support or fund operational costs for retail space.
- g) Reduced family housing: relocating the amenity space from the ground floor to the upper floors, will require additional units to compensate for the change of residential units to amenity space. To fit in more amenity space, while maintaining 299 total units, four two-bedroom family units would need to be converted to studio and one-bedroom units, resulting in 1.3% fewer family housing units.
- h) Additional outdoor amenity area: In response to the Enhanced Rezoning Response Letter, the revised design will include additional indoor and outdoor amenity space. It is not possible to add additional outdoor amenity at the top-level roof (thirtieth floor) because this will require an additional elevator service level which will push the elevator machine room into the view cone. As result, additional indoor and outdoor amenity space must be on the second and twenty-eighth floors, reducing the total amount of residential area.



RELAXATION RATIONALE / CONT'D

View cone impact relaxation - The existing residential development at 1033 Marinaside Crescent extends approximately two stories into the view cone and creates a “view shadow” across the 1050 Expo site. The proposed building height for the mechanical penthouse impacts the Cambie Street view cones (9.1, 9.2.1) and the view shadow by an area 1.8 m high by 8 m wide, as per the following diagram.

Working with consultants and stakeholders, the following measures has previously been implemented to reduce the total building height and the associated impact on the View Cones:

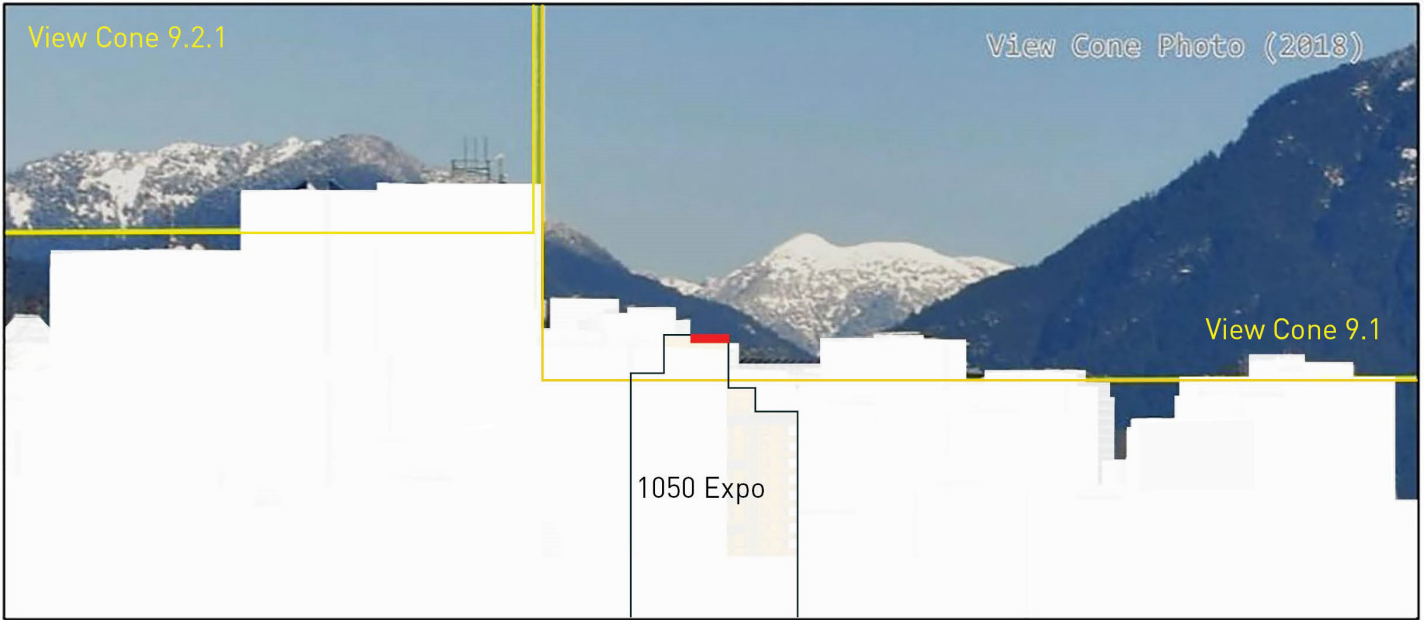
- a) Reducing the elevator overrun by 1100 mm by BC Housing approving a relaxation of the elevator interval time guideline.
- b) Reducing the floor to floor ceiling height of typical residential floors.
- c) Reducing the ground floor ceiling height.
- d) Moving the tower to the west & adjusting roof top geometry to eliminate impacts on the view cone west of the existing view shadows.
- e) Reducing structural transfer slabs by preserving structural continuity between floors.

The previous mitigating measures were insufficient to eliminate the total impact on the

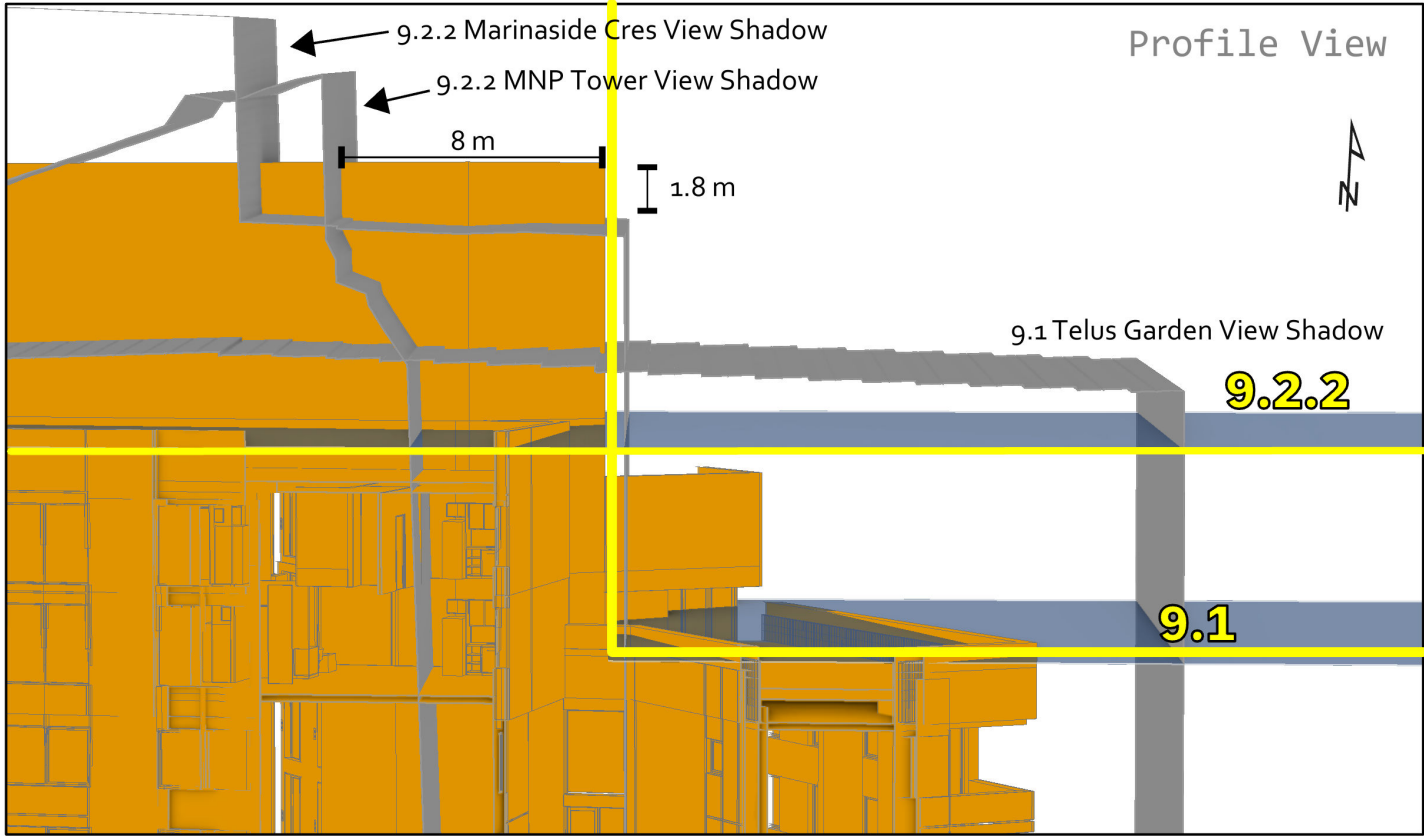
View Cone. Accordingly, a relaxation of the view cone height restriction is requested for the following reasons:

- a) The proposed building height maximizes affordable housing units on the site. A reduction in building height could reduce the total number of units on the site.
- b) The mechanical penthouse height can not be further reduced without impacting the minimum height requirements for elevator equipment, structure and insulation to meet Vancouver Building By-Law energy use requirements.
- c) Typical floor heights can not be further reduced without impacting BC Housing requirements for interior ceilings to ensure livability.

While the applicant acknowledges the importance of preserving the view cones, the following graphic analysis demonstrates that the impact of the mechanical penthouse will not diminish the overall view because the majority of the impact is located near the view shadows of existing buildings at 510 W Georgia St (Telus Garden), 609 Granville St, & 1021 W Hastings St. Nonetheless, the applicant will continue to explore opportunities to reduce the mechanical penthouse height.



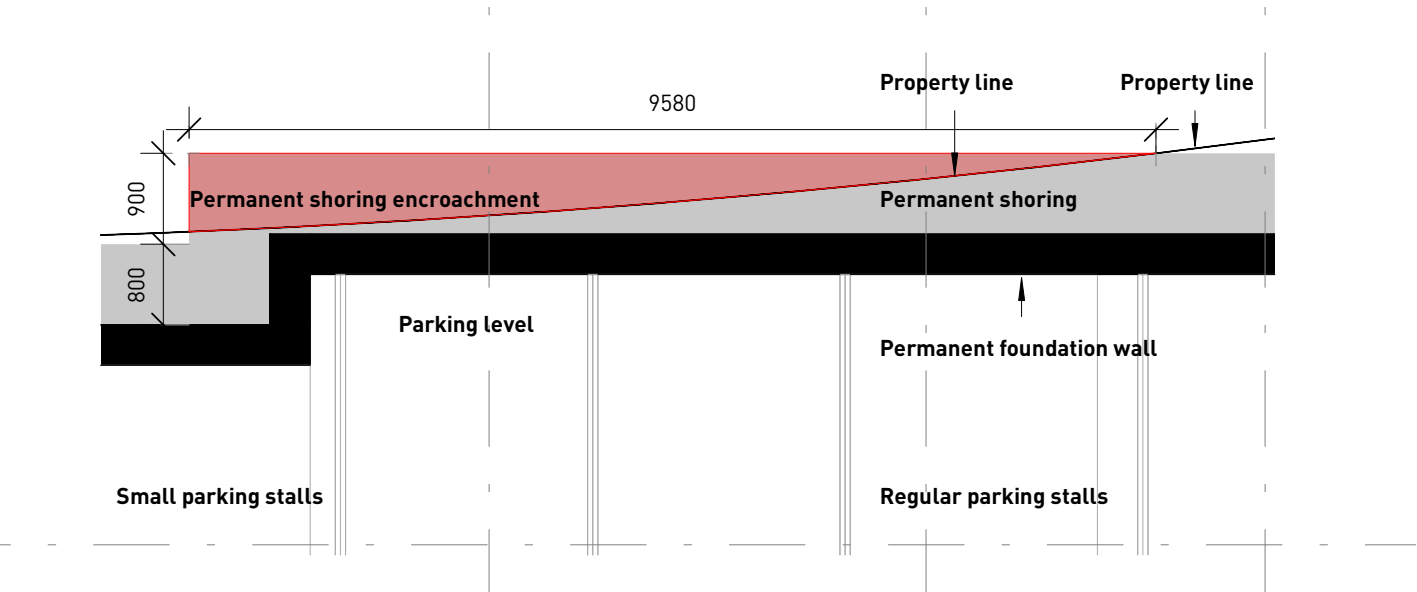
CAMBIE VIEW CONE 9.2.1, 9.1 VIEW IMPACT ANALYSIS



CAMBIE VIEW CONE 9.2.1, 9.1 VIEW IMPACT ANALYSIS

RELAXATION RATIONALE / CONT'D

Permanent shoring encroachment – To achieve an efficient parking layout, a permanent shoring encroachment is requested along the north property line on Expo Boulevard. The proposed encroachment is a triangular area approximately 900 mm x 9580 mm as per the diagram below. Without the encroachment, six parking stalls will be deleted or changed to small parking stalls.



Family housing target relaxation – The City requires 661 units across the three False Creek North sites. The family mix for 1050 Expo Boulevard was slightly reduced from the rezoning proposal to increase the total number of units from 296 to 299 in compensation for the loss of four units on the 990 Beatty Street site.

On the Expo site it is not possible to increase the percentage of family units, without reducing the total number of units (673 units) for the three sites by converting studios and one-bedrooms to family units or increasing the number of floors resulting in a penetration into the view cone and increasing the residential density on the site.

Unit mix relaxation – On the Expo site it is not possible to achieve the target unit mix by increasing the percentage of large units, without reducing the total number of units in the building and across the three sites. Adding more family units to achieve the target mix can not be accommodated without increasing the number of floors resulting in a penetration into the view cone and increasing the residential density on the site.

UNIT MIX	STUDIO	1-BED	2-BED	3-BED	TOTAL	FAMILY UNITS
1050 EXPO BOULEVARD	116 (39%)	71 (24%)	84 (28%)	28 (9%)	299	112 (37.5%)
450 PACIFIC STREET	32 (35%)	25 (27%)	23 (25%)	11 (12%)	91	34 (27%)
TOTAL	148 (38%)	96 (25%)	107 (27%)	39 (10%)	390	146 (37%)

RELAXATION RATIONALE / CONT'D

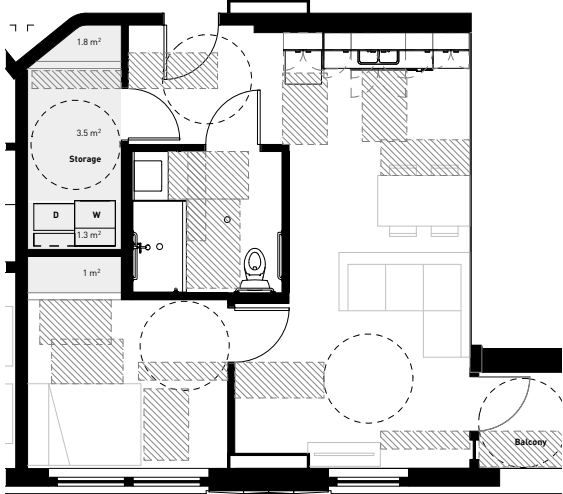
Accessible unit mix relaxation - 5% of the total number of units are designed as accessible units. The proposed Expo Boulevard design provides a range of Studio, 1-Bedroom and 2-Bedroom accessible units. The Pacific Street project provides a range of Studio, 1-Bedroom and 3-Bedroom accessible units. Across the two projects, a full range of accessible units with 45% family units is provided.

ACCESSIBLE UNIT MIX	STUDIO	1-BED	2-BED	3-BED	TOTAL	FAMILY UNITS
1050 EXPO BOULEVARD	4 (27%)	4 (27%)	7 (47%)		15	7 (47%)
450 PACIFIC STREET	1 (20%)	2 (40%)		2 (40%)	5	2 (40%)
TOTAL	5 (25%)	6 (30%)	7 (35%)	2 (10%)	20	9 (45%)

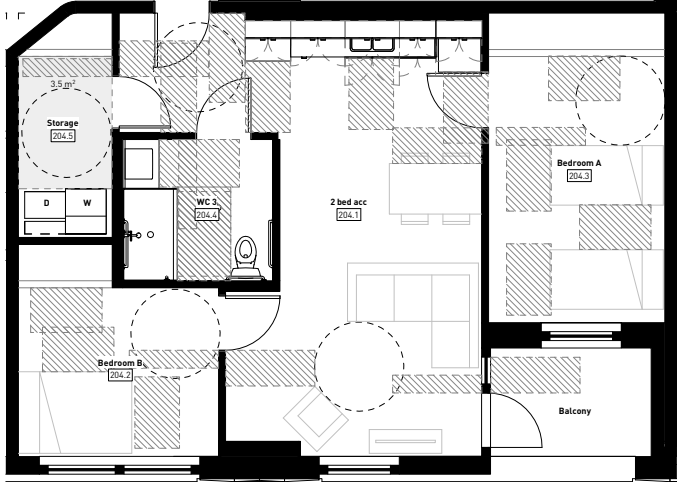


STUDIO - FLOOR PLAN
NET FLOOR AREA: 53.00 SQ. M.
STORAGE AREA: 4.5 SQ. M.

STORAGE



1 BEDROOM - FLOOR PLAN
NET FLOOR AREA: 67.00 SQ. M.
STORAGE AREA: 3.3 SQ. M.



2 BEDROOM - FLOOR PLAN
NET FLOOR AREA: 78.30 SQ. M.
STORAGE AREA: 2.5 SQ. M.

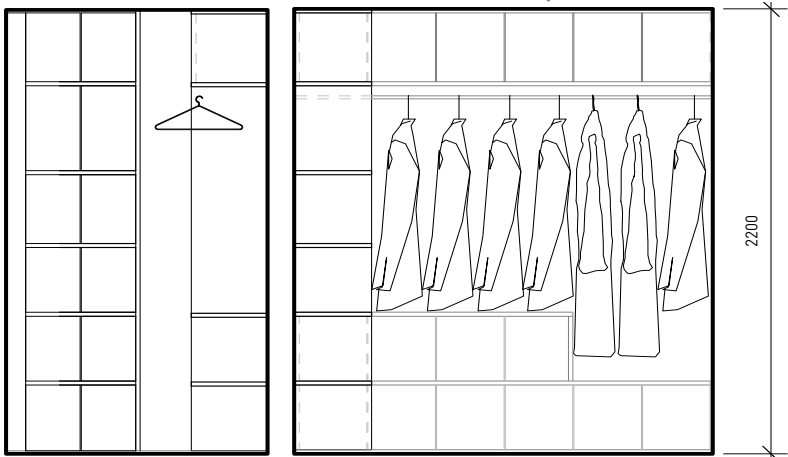
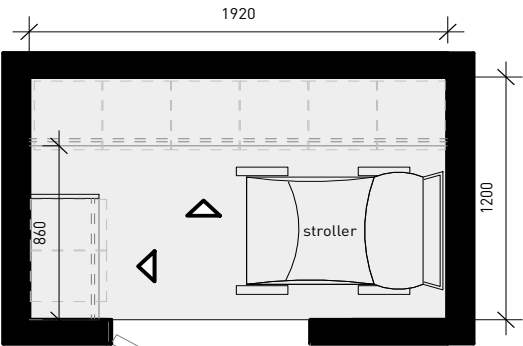
RELAXATION RATIONALE / CONT'D

Bulk storage relaxation – The minimum prosed bulk storage is 2.3 sq. m (25 sq. ft.) per one bedroom, two bedroom, three bedroom and all accessible units (actual storage room areas range from 2.3 sq. m. to 3.7 sq. m.). The following diagrams illustrates that the minimum proposed in-suite storage room size provides 2.8 linear metres of storage while minimizing unusable circulation space. The larger storage room provides 3.5 linear metres of storage space but also has a large amount of inefficient circulation space.

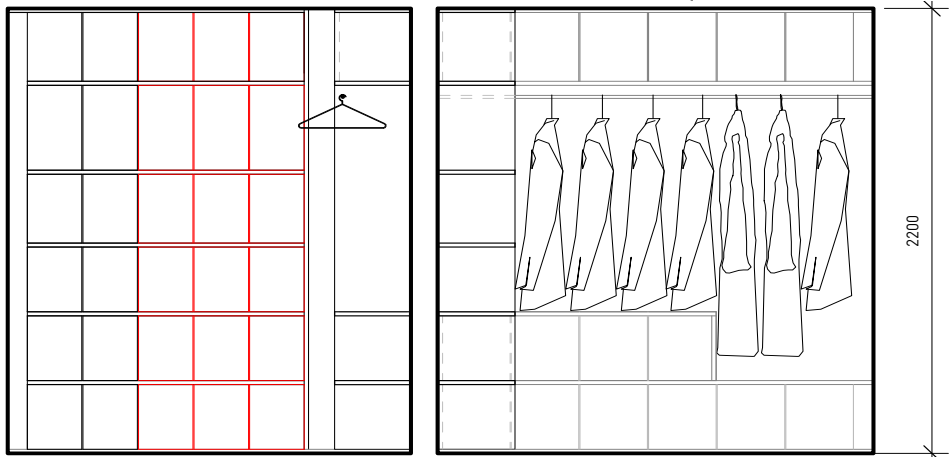
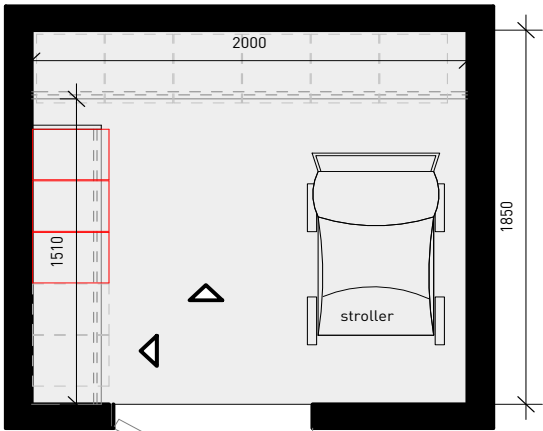
A bulk storage relaxation is requested to maximizing the amount of living and sleeping space in the unit, while providing efficient storage space. BC Housing limits the total area of each unit type, so larger storage rooms result in smaller living and sleeping space. The applicant team recommends the proposed solution because it balances usable living space and efficient storage space.



SAMPLE IN-SUITE STORAGE ROOM 2.3 SQ. M (25 SQ. FT.)



TYPICAL STORAGE ROOM LAYOUT AS PER BC HOUSING GUIDELINES
2.3 SQ. M (25 SQ. FT.) *FURNISHINGS TO BE PROVIDED BY THE TENANT



TYPICAL STORAGE ROOM LAYOUT AS PER CITY OF VANCOUVER GUIDELINES
3.7 SQ. M (40 SQ. FT.) *FURNITURE TO BE PROVIDED BY THE TENANT

DEVELOPMENT STATISTICS

Site description		
Address:	1050 Expo Boulevard, Vancouver, BC	
Legal Description:	LOT 232 PLAN LMP12010 DISTRICT LOT FALSE CREEK LAND DISTRICT 36 PIDS 018-557-694	
Use	Current	Proposed
Use	Residential	Residential
Zoning classification	CD-1 [324]	CD-1 [324]
Site area		
	m²	ft²
Site area	3,870.1	41,657.4
Floor area	Proposed	
	m²	ft²
Gross area (all levels, excluding residential balconies)	24,024	258,589
FSR exclusions (Amenity, multipurpose lounge, family room, resource' MTG, kitchenette, washrooms, lounge)	784	8,434
Total floor area for FSR	23,240	250,155
FSR		
FSR (floor area for FSR / site area)	6.00	
Building height	Proposed	
	m²	ft²
Storeys (excluding mechanical penthouse)	29	
Height from ground floor (4.8m geodetic)		
To the top of roof parapet		
To the top of mech. penthouse parapet	88.1	289.0
	95.7	314.0
Height from base surface		
Base surface under residential roof parapet	4.53	14.9
To the top of residential roof parapet	88.4	289.9
Base surface under mech. roof parapet	4.55	14.9
To the top of mechanical penthouse parapet	96.0	314.8

Area & FSR calculation summary							
	Number of floors	Net Res.area per floor (m²)	Net Res. area subtotal (m²)	Gross area per floor (m²)	Gross area subtotal (m²)	FSR exclusion area (m²)	Net FSR area (m²)
Level 1	1	0	0	644	644	287.2	357
Level 2	1	593.7	594	843	843	79.9	763
Level 3-8	6	675	4052	844	5065	0	5065
Level 9-12	4	675	2701	844	3377	0	3377
Level 13-16	4	681	2725	850	3400	0	3400
Level 17-27	11	681	7493	850	9351	0	9351
Level 28	1	284	284	522.6	523	56.6	466
Level 29	1	284	284	461.4	461	0	461
Roof	2	0	0	179.9	360	359.8	0
Total area (m²)			18,132		24,024	784	23,240
Total area (ft²)			195,176		258,589	8,434	250,155

Residential unit summary							
	No. of floors	Studio	1-bedroom	2-bedroom	3-bedroom	Total units per fl	Family mix per fl
Average net unit area (m²)		31.5	48	71	84		
Total unit count							
Level 1	1	0	0	0	0	0	0%
Level 2	1	5	1	3	1	10	40%
Level 3-8	6	30	6	24	6	11	45%
Level 9-12	4	20	8	12	4	11	36%
Level 13-16	4	24	8	12	4	12	33%
Level 17-27	11	33	44	33	11	11	36%
Level 28-29	2	4	4	0	2	5	20%
Subtotal per unit type		116	71	84	28		
Unit mix by type (%)		39%	24%	28%	9%		
Total unit count							299
Family unit mix (2-bed+)							37.5%

Indoor common amenity summary				
	Required m²	ft²	Provided m²	ft²
Indoor amenity per unit	1.4	15	1.4	15
Total	418.6	4485	424	4561

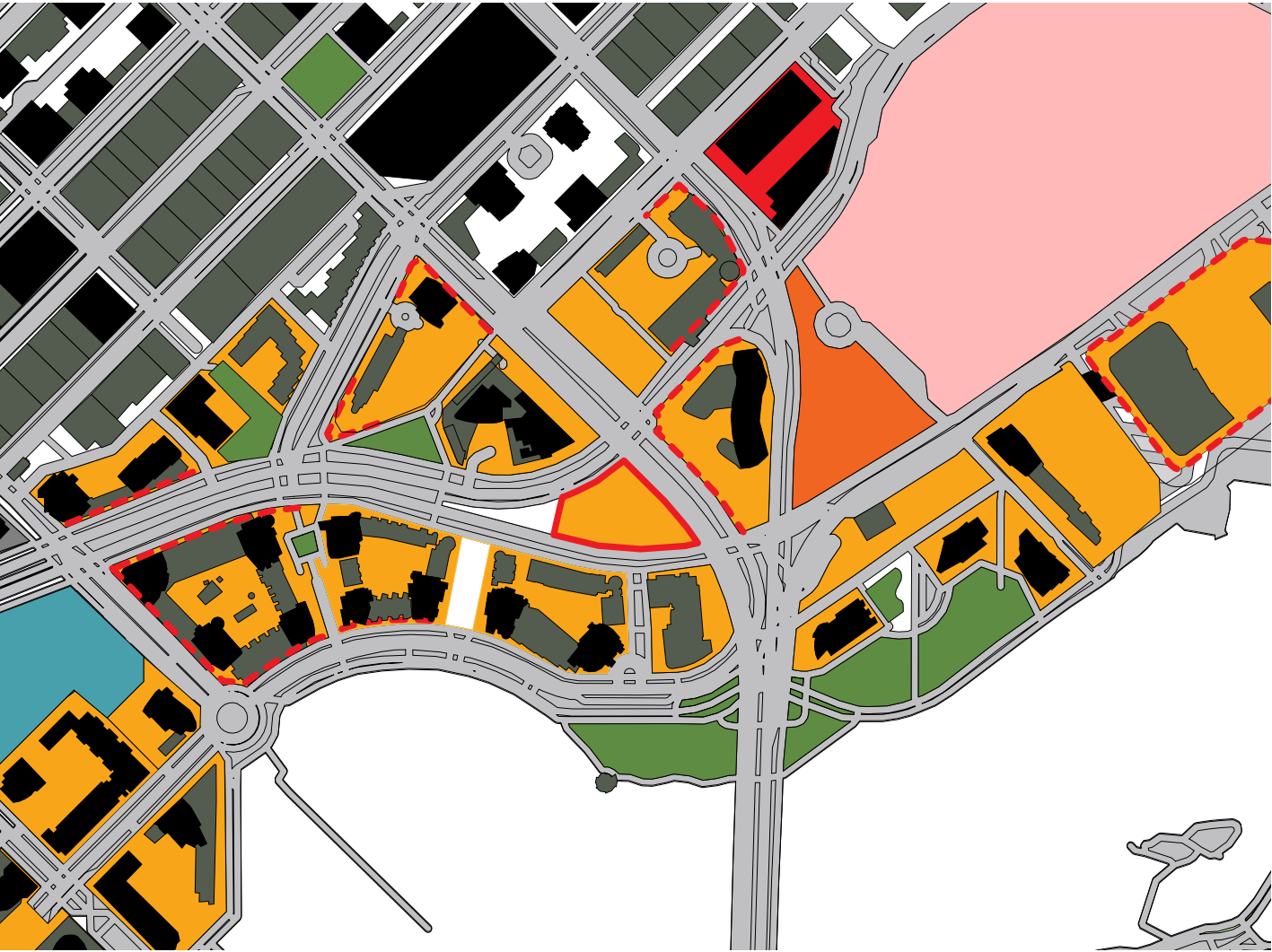
Outdoor common amenity summary				
	Required m²	ft²	Provided m²	ft²
Outdoor amenity space per unit	1.9	20	2.0	21
Subtotal for all units	556	5980		
Additional outdoor amenity (non-family units w/o balconies)	3.7	40	3.7	40
Subtotal for for non-family units without balconies	665	7160		
Total outdoor amenity (including communal balconies)	1221	13140	1254	13494

Accessible unit summary				
	Required 15		Provided 15	%
Total accessible units (5% required)				
accessible unit mix		Studio	4	27%
		1-bedroom	4	27%
		2-bedroom	7	47%

DEVELOPMENT STATISTICS / CONT'D

TDM SUMMARY								
Parking bylaw reference	Land use	Land use sub type (unit size, # bedrooms)	Land use quantity	Requirement rate	Required spaces	Reduction % claimed	Adj. req'd spaces	Proposed spaces
Vehicle parking								
4.3.2	Residential uses			0 spaces required	0			59
	Shared vehicle parking spaces							0
4.3.4	Residential visitor parking	Residential spaces	59	5% of residential spaces	2.95			3
Subtotal vehicle parking								62
Parking breakdown								
4.8.4	Accessible parking	Total units	299	+0.034 space per add	11			11
4.1.8	Small car parking	Total parking	62.0	max 25% of total parking	16			13
	Regular car parking							35
	Residential visitor parking							3
	Shared vehicle parking spaces							0
Subtotal vehicle parking								62
Loading & passenger loading								
5.2.1	Loading residential (class B)	Total units	299	Space for 100 to 299 units	1	(Class B)		1 (class B)
7.2.1	Passenger residential (class A)	Total units	299	Space for 125 to 275 units	2	(Class A)		4 (class A)
Total					3			5
Bicycle parking - class A								
6.2.1.2	Residential (class A)	Studio & 1 bed units	141	0.5 spaces for units < 65m2	211.5			211.5
6.2.1.2	Residential (class A)	2 & 3 bed units	112	2.5 spaces for units > 65m2	280			280
6.2.1.4	Shelter (class A)	Studio	46	0.75 for shelter	34.5			34.5
					299			526
Bicycle parking - class B								
6.2.1.2	Residential (class B)	Total units	299	2 per 20 units + 1 for each add 20 units	16			16

SITE CONTEXT & ANALYSIS



- RESIDENTIAL
- MIXED USE: CULTURAL AND RECREATION
- MIXED USE: COMMERCIAL/RESIDENTIAL
- OFFICE/RETAIL SERVICE & ANCILLARY USES
- COMMUNITY CENTRE
- GREEN SPACES
- ROAD NETWORK
- EXISTING RETAIL/SERVICE USE

Land use

1050 Expo Boulevard is located in a mixed-use residential and commercial neighbourhood, and close to retail shopping, grocery stores, schools, libraries, theatres, parks, restaurants, Yaletown, the Roundhouse Community centre, BC Place, Rogers Arena and the Downtown entertainment district.



- SITE
- CANADA SKYTRAIN LINE
- EXPO SKYTRAIN LINE
- BUS 23 ROUTE
- BUS 17 ROUTE
- BIKE LANES

Transportation analysis

Bus 17 & 23 stops are within 100 metres of the site. Bus 23 travels through downtown Vancouver, and Bus 17 connects downtown and Mount Pleasant/Fairview neighbourhoods. The Yaletown-Roundhouse SkyTrain station is within 400 metres of the site.

STIE CONTEXT & ANALYSIS / CONT'D



Site context photos

The southside of Pacific Boulevard is fronted by two-storey townhouse units, 34 storey tower at 1033 Marinaside Crescent, 24 storey tower at 1055 Marinaside Crescent and a six-storey rental apartment building at 1010 Pacific.

The northside of Expo Boulevard is fronted by a one-storey parking structure, landscaping and a vehicular entry court for the 34-storey Landmark 33 tower at 1009 Expo Boulevard.

The eastside of the site faces the Cambie Bridge, City pump station and Nelson Street. Across Nelson is the 30-storey Arc residence.

L: NORTH WEST VIEW FROM CAMBIE STREET BRIDGE
R: SOUTH EAST VIEW FROM EXPO BOULEVARD

SITE CONTEXT & ANALYSIS / CONT'D



NORTH WEST VIEW BELOW CAMBIE STREET BRIDGE



SOUTH WEST VIEW FROM CAMBIE STREET BRIDGE



LOOKING WEST FROM CAMBIE STREET BRIDGE



PUMP STATION UNDER CAMBIE STREET BRIDGE



LOOKING EAST FROM EXPO BOULEVARD TOWARDS THE RING GEAR PUBLIC ART



SOUTHEAST VIEW FROM TOP OF CAMBIE STREET BRIDGE

Site photos

Existing site photos of residential development on adjacent sites.

SITE CONTEXT & ANALYSIS / CONT'D



PANORAMIC VIEW OF THE AFFORDABLE HOUSING BUILDING AT 1050 PACIFIC AND TOWNHOUSE UNITS ALONG PACIFIC BOULEVARD



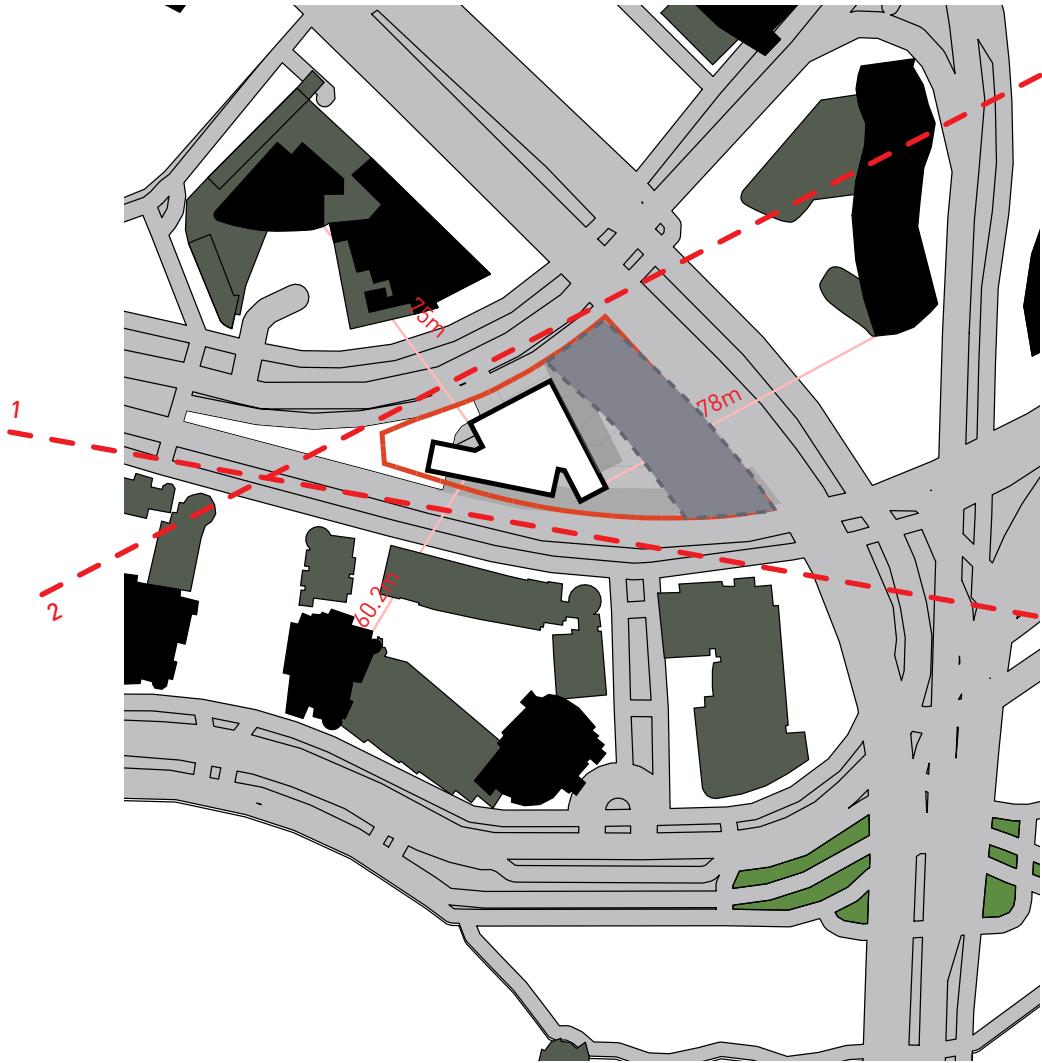
PANORAMIC VIEW ALONG CAMBIE STREET BRIDGE - THE ARC RESIDENCE AT 89 NELSON STREET IN THE MIDDLE OF THE IMAGE

NEXT PAGE: LOOKING NORTHWEST ON PACIFIC BLVD

PUBLIC ARCHITECTURE + COMMUNICATION

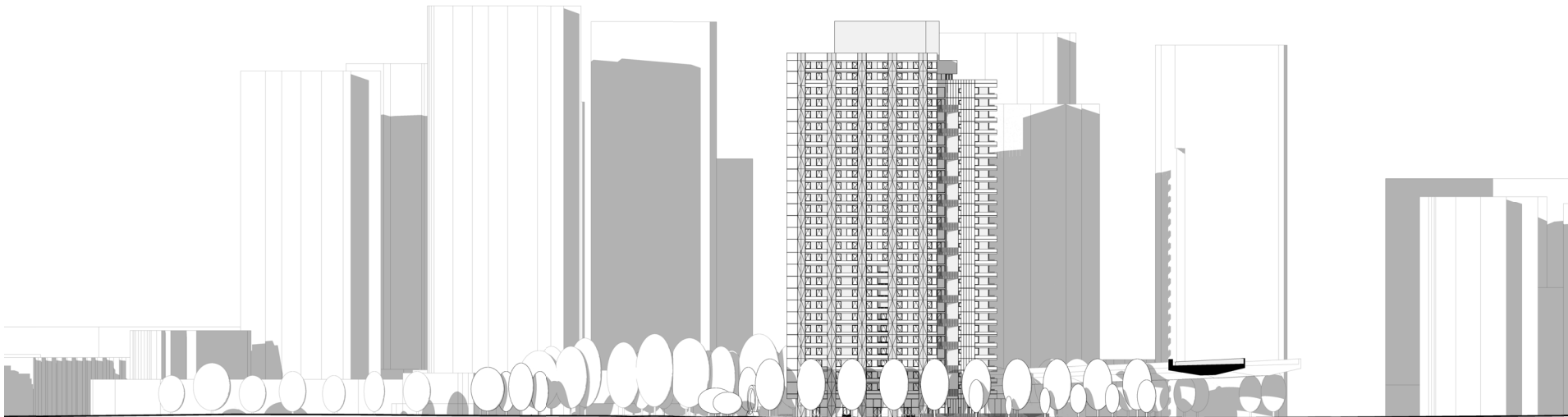


SITE CONTEXT & ANALYSIS / CONT'D



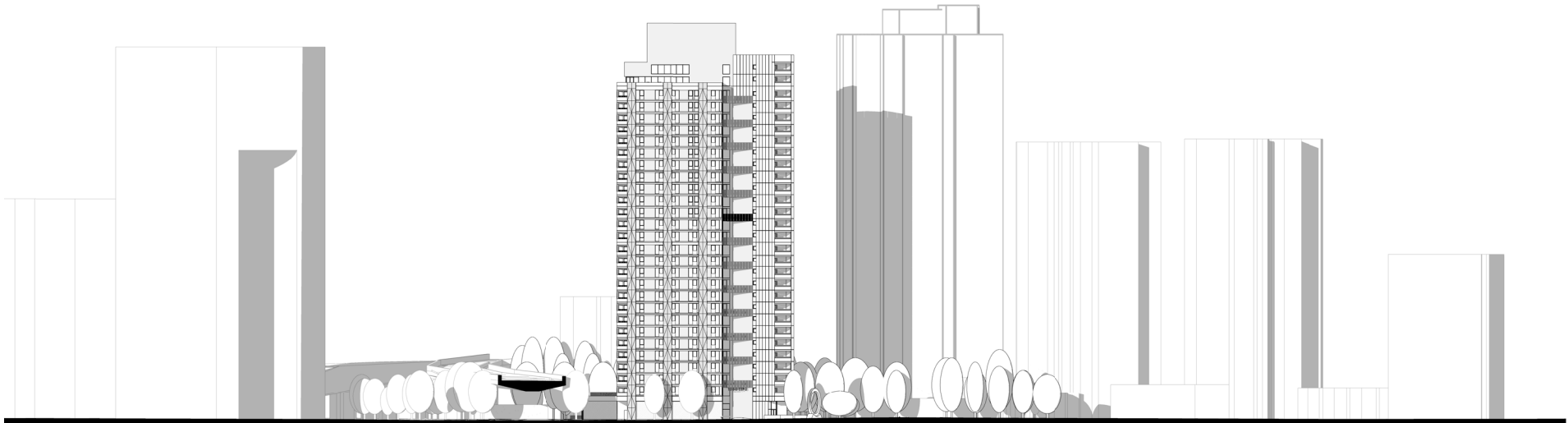
Streetscapes

1050 Expo Blvd. is one of the last sites to be developed in the Quayside, Cambie-Beatty and Coopers Park Neighbourhoods. Neighbouring residential towers vary in height, form, floorplate size and character. The proposed tower at 1050 Expo is separated from adjacent developments by wide boulevards and the Cambie Bridge. Tower separations exceed 60.2m (197 ft) in all directions.



Landmark 33, 1009 Expo 1050 Expo Boulevard The Arch, 89 Nelson

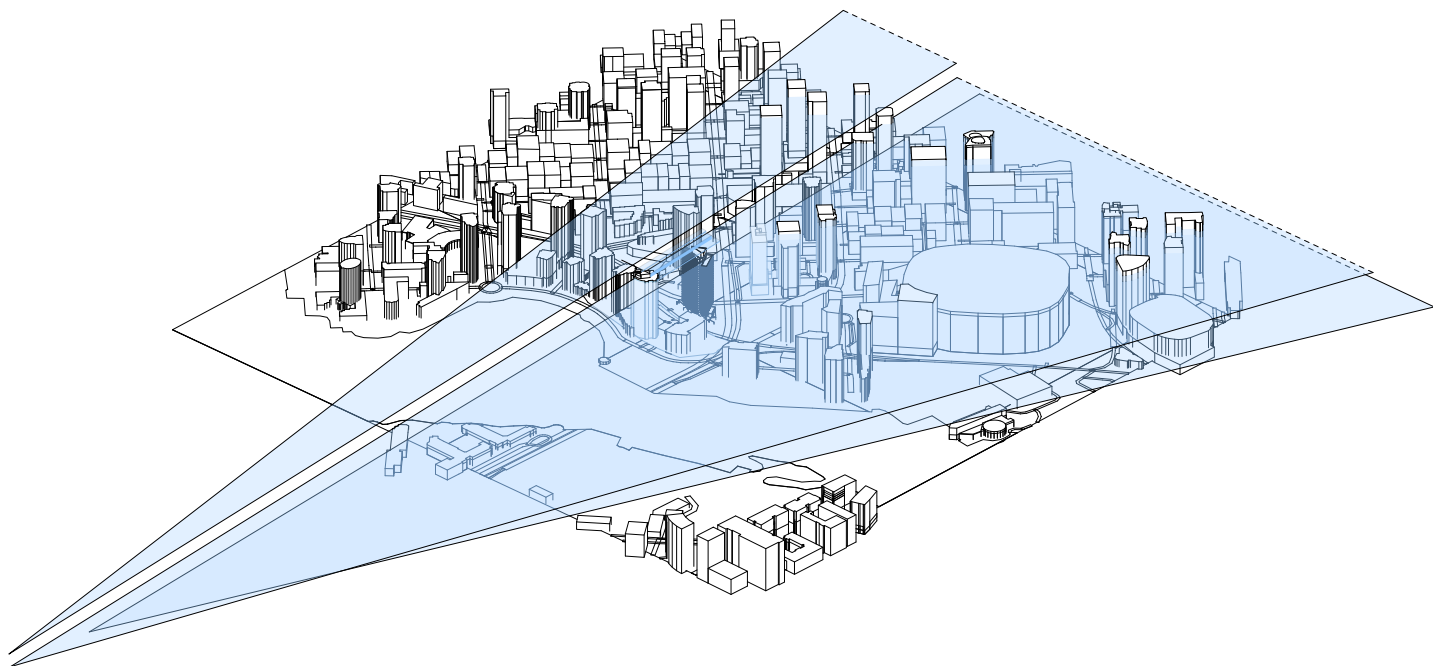
STREETSCAPE 1 - PACIFIC BLVD.



The Arch, 89 Nelson Street 1050 Expo Boulevard 1033 Marina Crescent

STREETSCAPE 2 - EXPO BLVD.

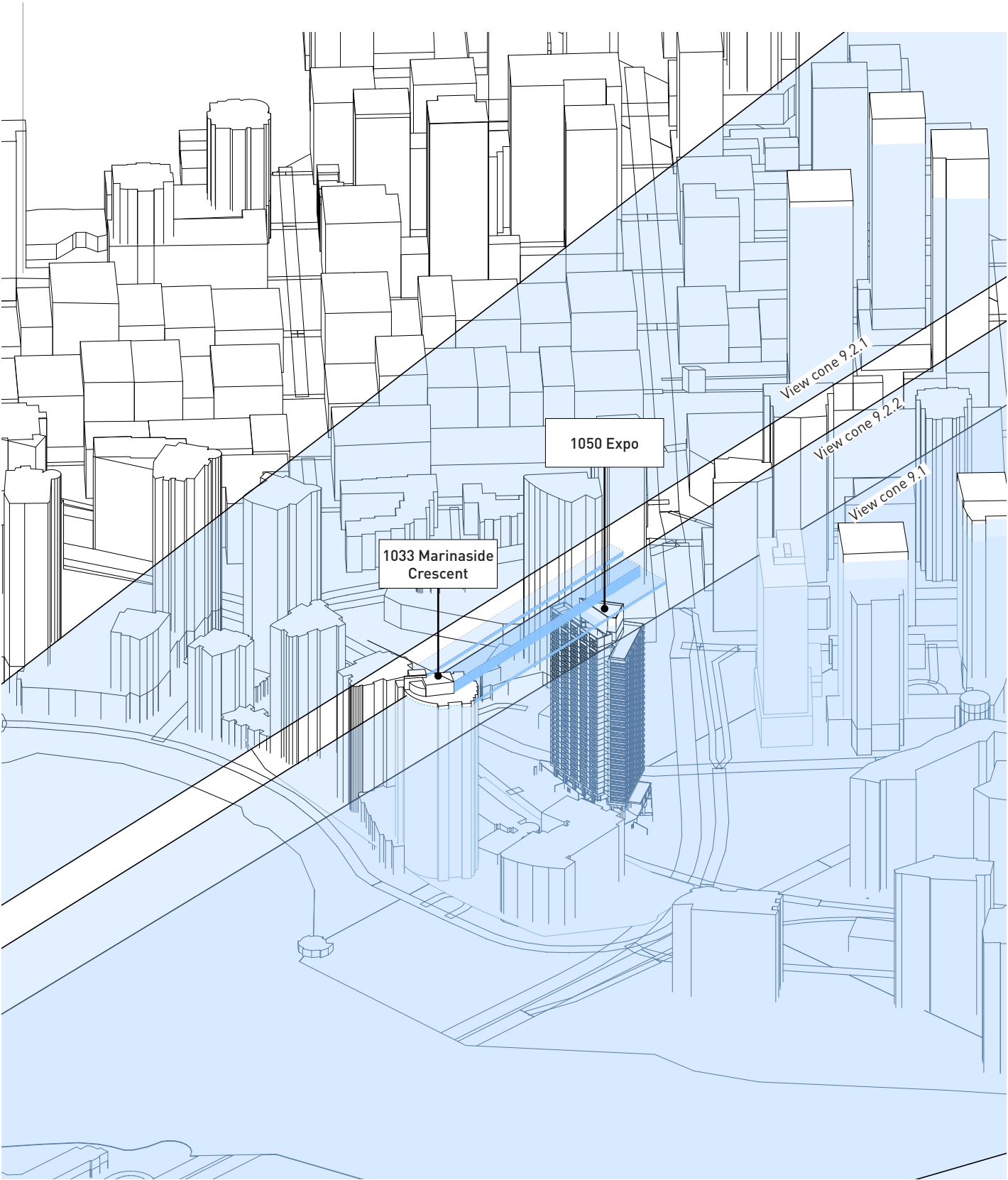
SITE CONTEXT & ANALYSIS / CONT'D



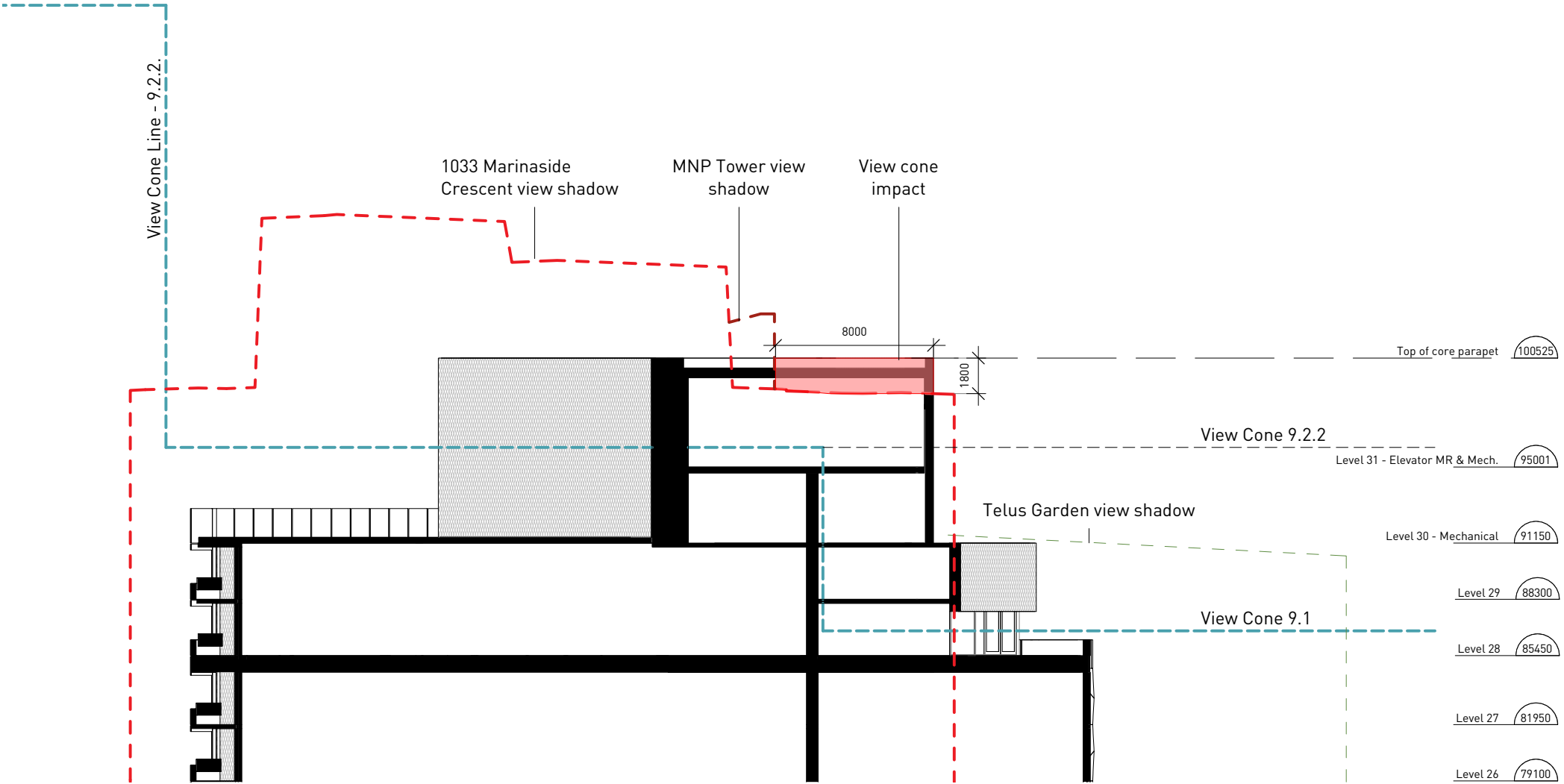
View cone analysis

Height - The CD-1 (324) bylaw limits the maximum building height, measured above the base surface excluding the mechanical penthouse and roof, to 91 m. The site is also subject to the protected Cambie Street view cones (9.1, 9.2.1, 9.2.2), limiting the maximum building height.

However, the 34-storey residential development at 1033 Marinaside Crescent extends approximately two stories into the view cone and creates a “view shadow” across the 1050 Expo site. A relaxation is requested to allow the proposed building massing to extend into the view shadow to achieve an additional two stories of building height with no impact on the protected view cones.



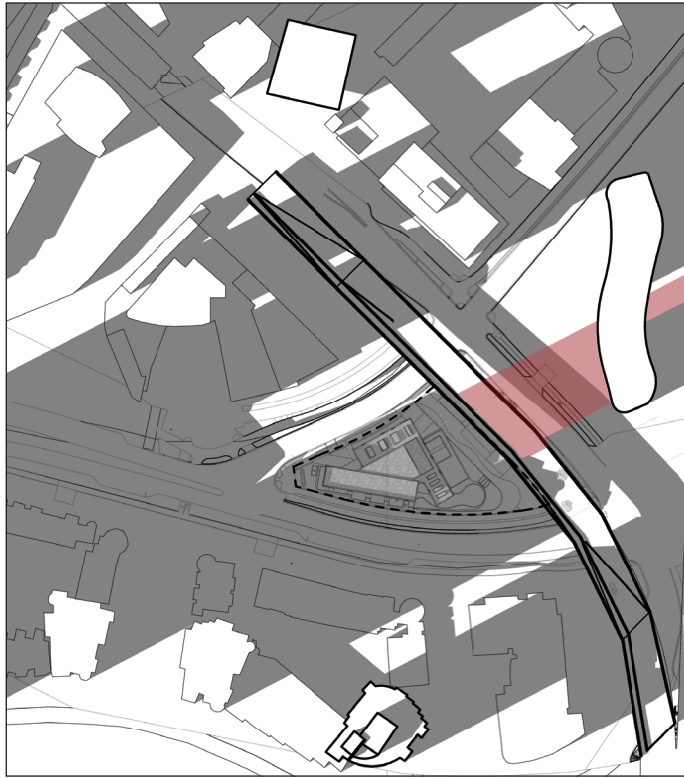
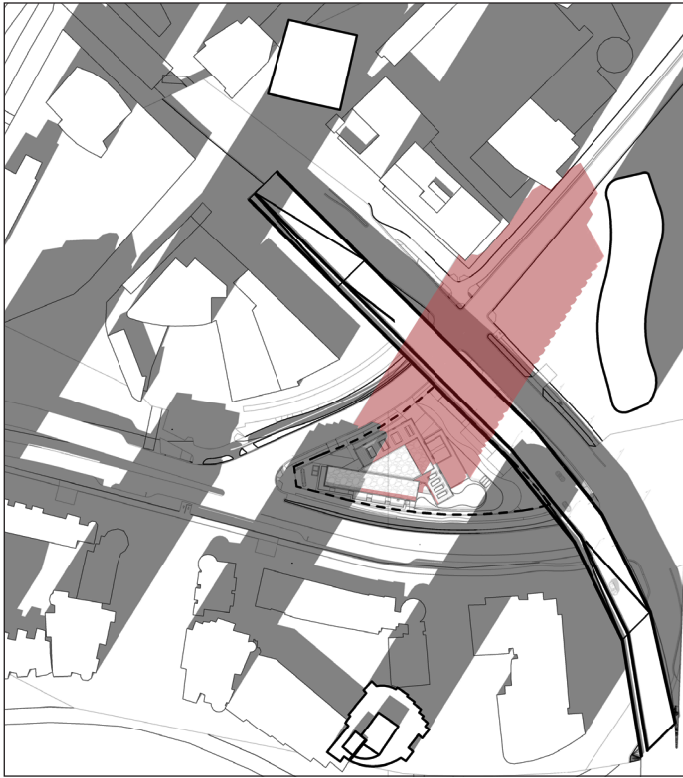
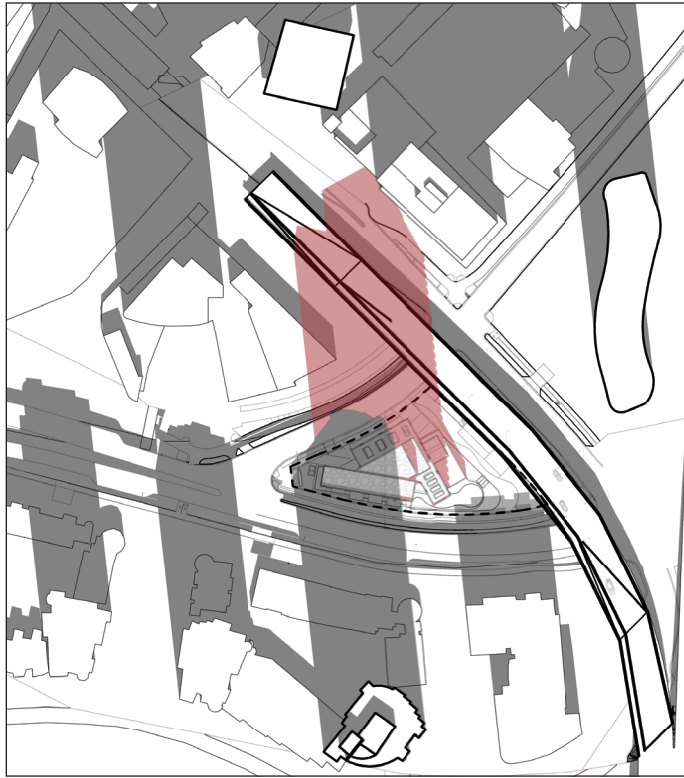
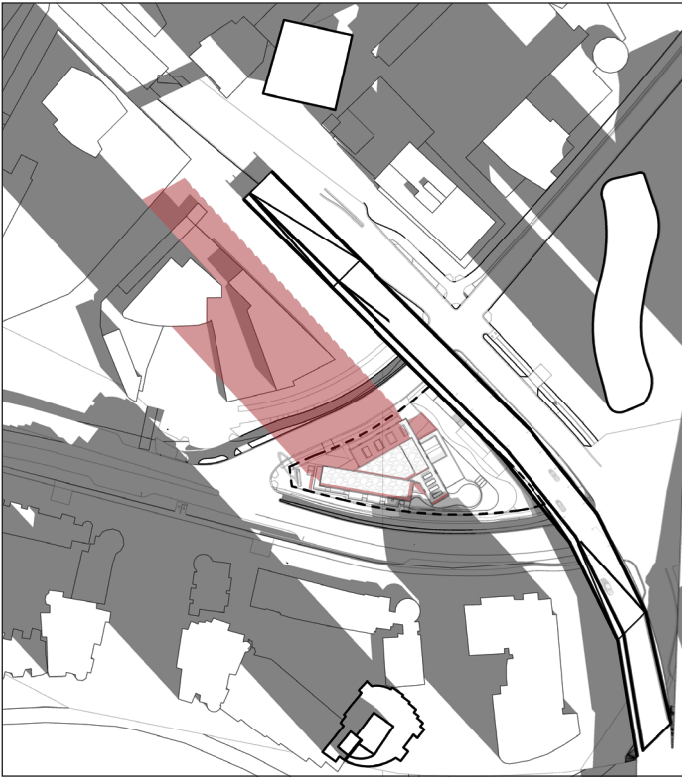
SITE CONTEXT & ANALYSIS / CONT'D



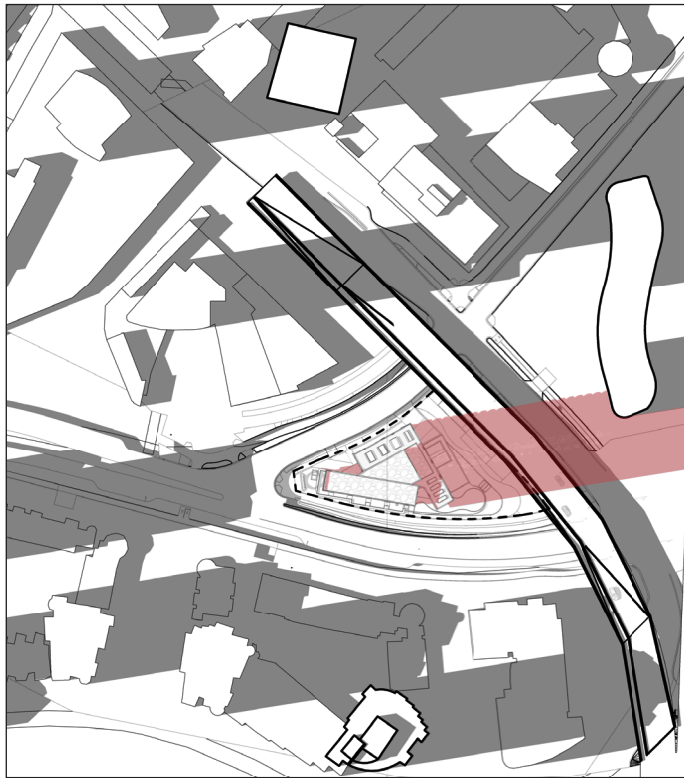
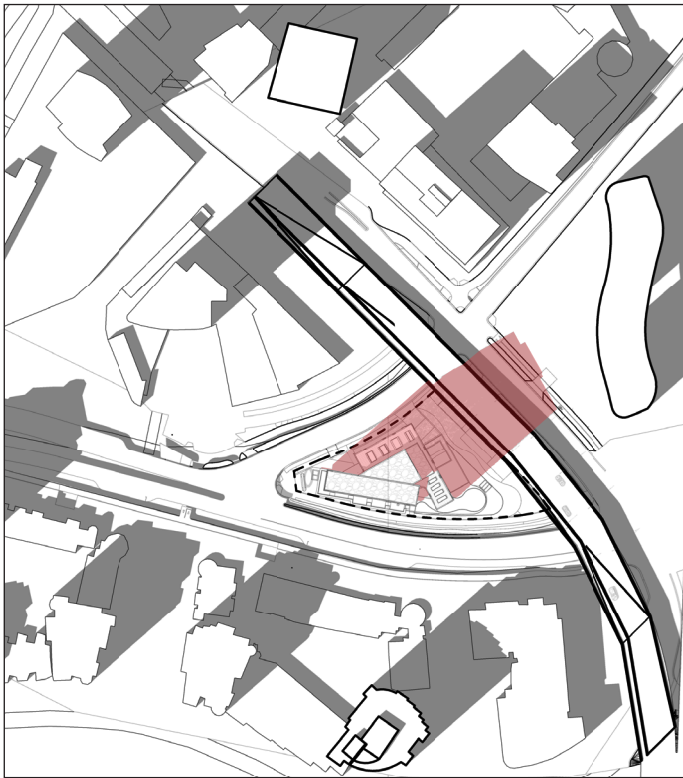
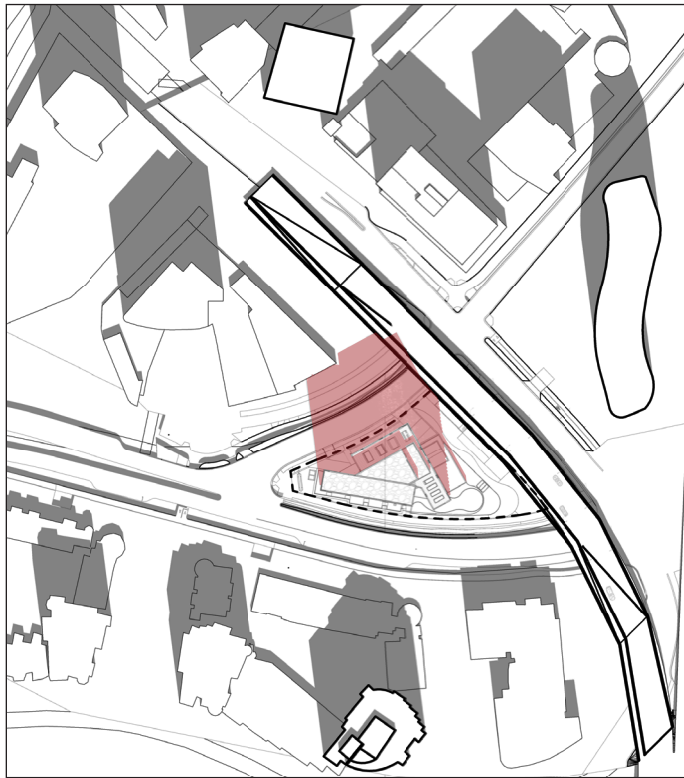
View cone shadows
The 1033 Marinaside Crescent mechanical penthouse shadows the 1050 Expo penthouse allowing the tower top to rise above view cone 9.2.2 with no impact on the Cambie Street view.

SITE CONTEXT & ANALYSIS / CONT'D

SPRING EQUINOX



SUMMER SOLSTICE



Shadow studies
1050 EXPO BOULEVARD

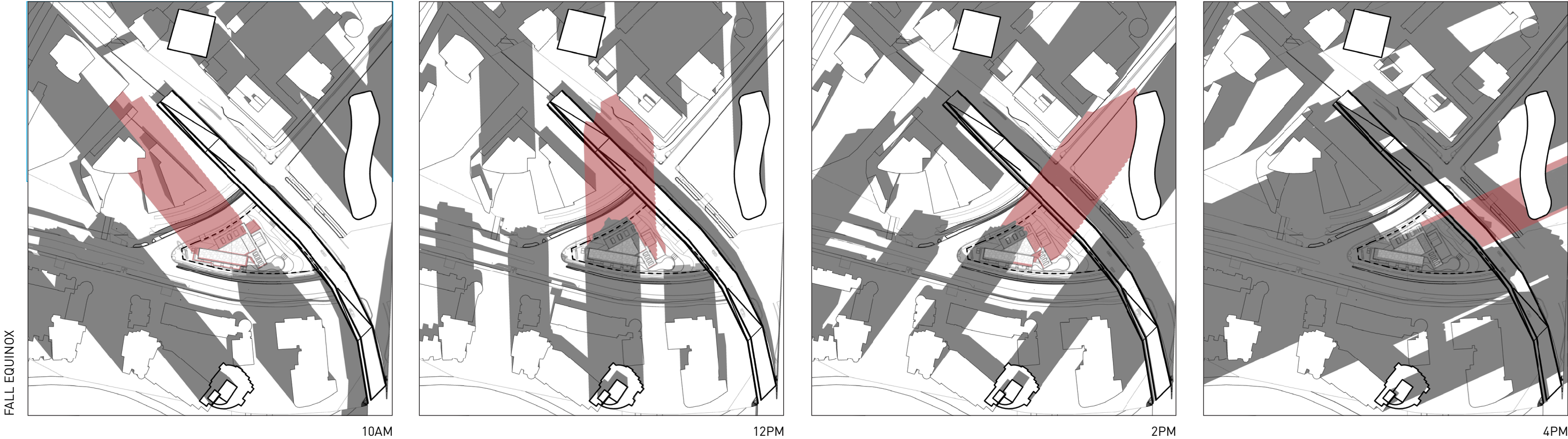
10AM

12PM

2PM

4PM

SITE CONTEXT & ANALYSIS / CONT'D



Shadow studies

NEXT PAGE: NORTH ELEVATION LOOKING SOUTH
PUBLIC ARCHITECTURE + COMMUNICATION



